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HAMRE, SCHUMANN, MUELLER & LARSON, P.C.
P.O. BOX 2902
MINNEAPOLIS, MN 55402-0902

EXAMINER	
ZEC, FILIP	

ART UNIT	PAPER NUMBER
3785	

MAIL DATE	DELIVERY MODE
12/14/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/529,154	UMENO, YOSHIHISA	
	Examiner	Art Unit	
	Filip Zec	3785	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 October 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 5-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 5-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The title of the invention is not descriptive and is objected to. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: A cooling device with a fan, a partition and a multiple air flow colliding aperture in the partition for defrosting purposes.

Response to Arguments

2. Applicant's arguments filed 10/11/2010 have been fully considered but they are not persuasive.

In reference to the applicant's arguments regarding the Kim reference and the inherent phenomenon of two air flow collision, looking at FIG. B (as annotated by the Examiner), the space surrounding the fan (20, FIG. A) is sufficiently open to inherently provide movement of air flow in both directions. Specifically, the first area (defined by offset dimensions 1, FIG. B) provides ample open space in the radial direction and the second area (defined by offset dimension 2, FIG. B) provides ample open space between the partition and the fan. Again, it has been held that a claim is anticipated if each element of the claim is found , either expressly described or under principles of inherency, in a single prior art reference, or that the claimed invention was previously known or embodied in a single prior art device or practice. Kalman v. Kimberly-Clark Corp., 218 USPQ 789. Also, it is elementary that the mere recitation of a newly discovered function or property, inherently possessed by things in the prior art, does not cause a claim drawn to distinguish over the prior art. Additionally, where the Patent Office has reason to believe that a functional limitation asserted to be critical for establishing novelty in the claimed

subject matter may, in fact, be an inherent characteristic of the prior art, it possesses the authority to require the applicant to prove that the subject matter shown to be in the prior art does not possess the characteristic relied on. In re Swinehart, 169 USPQ 226 (CCPA 1971).

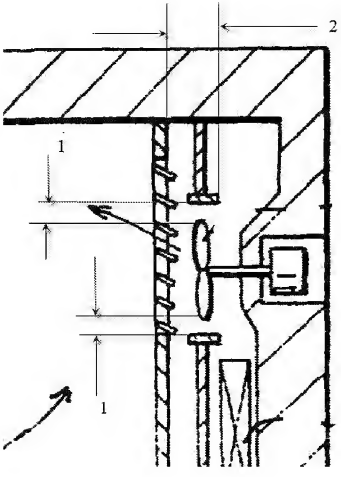

FIG. B, as annotated by the Examiner: Dimensions 1 and 2, defining the first and second open areas between the partition and the fan in both the radial and frontal directions

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); In re Merck & Co., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this case, Kim, Lazar and

Clark are combined to show the intended use, as claimed, of the structure of Kim and Lazar since Clark teaches that the that the mixing of various velocity airflows produces a turbulence that leads to improved overall distribution of the cold air thus improving the overall cooling efficiency (col 1, lines 42-45). It is inherent in the structure of Lazar and Kim, which teaches the empty space around and in front of the fan, having said fan to allow for mixing of air flows of different velocities, thus improving the overall cooling efficiency.

In response to applicant's argument that the frost deposition is avoided due to the mixing effects of the two air flows, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See Ex parte Obiaya, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-3 and 5, 6, 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,987,904 to Kim et al. (Kim) in view of U.S. Patent 2,747,391 to Lazar (Lazar) and U.S. Patent 6,619,045 to Clark (Clark).

In reference to claim 1, Kim teaches a cooling device (FIG. 2) comprising a cooler (11, FIG. 2) provided on at least one side-wall side (G, FIG. A, as annotated by the Examiner) formed with a thermal insulating box (inherent in a freezer construction as shown in Kim, see FIG. 2); a

cooling chamber (F, FIG. A) in front of the cooler (11, FIG. 2); and a fan (20, FIG. 2) that allows air in the cooling chamber to flow, wherein the cooler and the cooling chamber are partitioned by a partition (C, FIG. A) so as to allow cold air to be accumulated in the cooler, the fan (20, FIG. 2) is disposed on a side of the cooler (11, FIG. 2) relative to the partition (C, FIG. A), the partition in front of the fan (20, FIG. 2) has an aperture (D, FIG. A) formed in a flat sheet portion (above and below partition C, FIG. A), a first open space is formed between the fan and the flat sheet portion in which the aperture is formed (as defined by dimensions 1 plus fan propeller length and 2, FIG. B, above) and a second open space is formed outside the fan in the radial direction (as defined by dimensions 1 plus fan propeller length and propeller width, FIG. B above), cold air accumulated in a space inside the partition, and hot air in the cooling chamber are exchanged by the fan (20, FIG. 2) through the aperture (D, FIG. A), wherein the rotation of the fan generates a discharged flow of cold air discharged from the cooler to the cooling chamber through the aperture and a sucked flow of cold air sucked from the cooling chamber to the cooler through the aperture, and the discharged flow and the sucked flow directed from the cooling chamber to the cooler collide with each other in a portion in which the aperture is provided (inherent in the structure as described in Kim, see FIG. 2), but does not teach that the perimeter of the fan is not surrounded by a cylindrical component. Lazar teaches a forced convection evaporator (FIG. 3) wherein a fan (58, FIG. 3) is located inside the casing (2, FIG. 3) and wherein said fan is not surrounded by a surrounding component in order to allow the fan to suck the cooled air from entire space inside of the casing, including the bottom area of the casing (where the evaporator 28 is located) and disperse said area in the opposite direction towards the discharge (66, FIG. 2 and 4) and thus increasing the efficiency of the refrigerating system (col 2,

lines 40-45). Additionally, Clark teaches that is well known that the mixing of various velocity airflows produces a turbulence that leads to improved overall distribution of the cold air thus improving the overall cooling efficiency (col 1, lines 42-45). It is inherent in the structure of Lazar and Kim, which teaches the empty space around and in front of the fan, having said fan to allow for mixing of air flows of different velocities, thus improving the overall cooling efficiency.

Therefore, it would thus have been obvious to one of ordinary skill in the art at the time of the invention was made to additionally modify Kim, by having a fan located inside the casing, wherein said fan is not surrounded by a surrounding component and having an open space outside said fan in the radial direction, as taught by Lazar, in order to allow the fan to suck the cooled air from entire space inside of the casing, including the bottom area of the casing (where the evaporator is located) and disperse said area in the opposite direction towards the discharge and thus increase the efficiency of the refrigerating system and to mix various velocity airflows, as taught by Clark, in order to produces a turbulence that leads to improved overall distribution of the cold air thus improving the overall cooling efficiency.

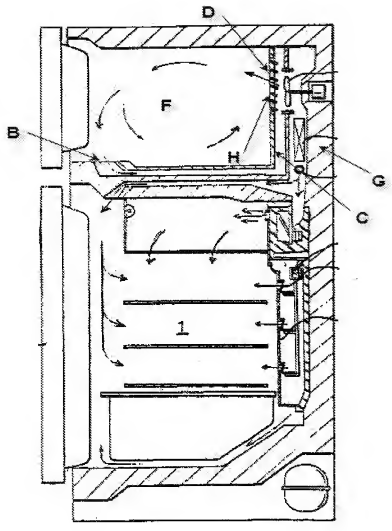

FIG. A, as annotated by the Examiner: A Cooling Device

In reference to claim 2, Kim, Lazar and Clark disclose the cooling device as explained in the rejection of claim 1, and Kim also teaches that dimensions of the aperture (D, FIG. A) are larger than a diameter of the fan (20, FIG. 2).

In reference to claim 3, Kim, Lazar and Clark disclose the cooling device as explained in the rejection of claim 2, and Kim also teaches that when viewing the fan (20, FIG. 2) in a

direction of a rotation shaft of the fan, the fan is disposed in the aperture (D, FIG. A) and there is an open space outside the fan (in front and around of fan 20, FIG. 2).

In reference to claim 5, Kim, Lazar and Clark disclose the cooling device as explained in the rejection of claim 1, and Kim also teaches that the discharged airflow and the sucked flow collide with each other, thus suppressing the flow speed of the cold air (inherent in the structure as described in Kim, see FIG. 2 and FIG. A).

In reference to claim 6, Kim, Lazar and Clark disclose the cooling device as explained in the rejection of claim 1, and Kim also teaches that the fan (20, FIG. 2) is disposed above the cooler (11, FIG. 2).

In reference to claim 8, Kim, Lazar and Clark disclose the cooling device as explained in the rejection of claim 1, and Kim also teaches that a slit (B, FIG. A) is formed in the partition (C, FIG. A) at a portion below the cooler (11, FIG. 2).

In reference to claim 10, Kim, Lazar and Clark disclose the cooling device as explained in the rejection of claim 1, and Kim also teaches that a safety cover (grille H, FIG. A) is disposed over the fan aperture (D, FIG. A).

5. Claims 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim in view of Lazar and Clark as applied to claim 1 above, and further in view of U.S. Patent 4,420,679 to Howe (Howe).

In reference to claims 7 and 9, Kim, Lazar and Clark disclose the cooling device as explained in the rejection of claim 1, but do not explicitly teach that a fan application with an area of the aperture S and a diameter of the fan R satisfies a plurality of combinations, including the following relationship

$$1.5\times\pi(R/2)^2 \le S \le 2\times\pi(R/2)^2$$

Howe teaches (FIG. 3) that the aperture diameter is approximately twice the length of the fan sweep diameter, and therefore, meets the limitation criteria in order to advantageously create a more subtle temperature gradient throughout the chamber by way of enhanced mixing, and thereby, providing a more predictable environment within the enclosure for more predictable results

Therefore, it would thus have been obvious to one of ordinary skill in the art at the time of the invention was made to additionally modify Kim, Lazar and Clark by proportioning the fan to aperture ratio in accordance with

$$1.5\times\pi(R/2)^2 \le S \le 2\times\pi(R/2)^2$$

as taught by Howe in order to advantageously create a more subtle temperature gradient throughout the chamber by way of enhanced mixing, and thereby, providing a more predictable environment within the enclosure for more predictable results. It would have been further obvious to one of ordinary skill in the art at the time of the invention was made to modify the apparatus of Kim, Lazar and Clark with an oversized fan aperture with a plurality of proportions with said range in order to advantageously create a customized flow pattern, and thereby, further satisfying designers criteria to afford better results.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Filip Zec whose telephone number is 571-270-5846. The examiner can normally be reached on Monday-Friday, from 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JJ Swan can be reached on 571-272-7075. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J J Swann/
Supervisory Patent Examiner, Art Unit 3785

/F. Z./
Examiner, Art Unit 3785

12/10/2010